MITSUBISHI IP (Security Products)

Field Information Notice

FIN #: 008	Rev. C Page 1/11
Date: 6/30/04	
Product: DX-TL910U & DX-TL2500U	
Subject: DSL/ADSL connection setup instructions	
Target Audience: Sales/Dealers/User	
Originator: Hon Yu (949) 465-6436	
www.mitsubishi-imaging.com	

GENERAL INFORMATION:

The DX-TL910U and DX-2500U are 9 and 16 Channel Digital Video Recorder (DVR) which have built-in networking and remote management capabilities. User can monitor live and playback prerecorded video through the LAN or WAN connection. For remote access, CABLE or DSL/ADSL is a popular connection method and are provided in most areas of the country.

Setting up the DVR itself to communicate in a LAN or WAN environment is very easy. The network interface on the DVR only requires three value – the IP address, SUBNET MASK and GATEWAY address. However the harder task is configuring the equipment provided by your ISP (Internet Service Provider). To satisfy their system's authentication (if your ISP uses PPPoE) and configuring firewall are no small task. It requires computer and networking expertise.

WHERE TO GET HELP:

You can pay IT professional to do the LAN/WAN installation or get free help from your ISP technical support. Since your ISP provides you the hardware (the modem, router etc.) and the service (IP address, User account and Password etc.). Their technical support should be able to walk you through the configuration and Setup changes needed to support accessing the DVR via WAN.
Most of the DSL installation package only configure your computer to go online (**outbound access;** inquiry initiated from inside). To access the DVR from a remote site you need **inbound access** (inquiry initiated from outside). When you ask help from your ISP support your need to tell them,

1. The DVR works like a web server (**inbound** access)
2. The DVR uses **TCP** protocol on ports **80**, **53705 ~ 53711** and **55111** to communicate (open those ports from the firewall)

From my experience, level I technical support usually is not trained to help you configure inbound access. You may need them to escalate to a higher level support.

Once the configuration is done you can run the Web Browser. You type the DVR IP address on the Browsers Address line and GO. The DVR default USER NAME is "root" and PASSWORD is "admin000" (no quotes and case sensitive, 0 is numeric zero not letter O) and select the function you want (LIVE, PLAYBACK…). You can also use the DX-PC25U application software which comes with each DVR to connect to the unit. The software must be loaded in each connecting PC. The same User Name and Password as above is needed for the DVR.

The “CONFIGURATION/SETUP CONCEPT” section of this document should help the IT professionals who are familiar with networking but don’t know much about the DSL communication. Understanding the principle will allow you to configure any brand of DSL modems on the market. For your convenience a real example is provided. With the same model of modem you should be able to follow the instructions to complete your DVR installation without too much problem. There are two reasons why the 2Wire OfficePortal 1800 HW was chosen for illustration. One, it is the equipment provided by SBC to their DSL static IP customer. Two, it combines DSL modem and router functions together into one unit. User who owned a DSL modem with only a single network connector will need a router to add more equipment on the line. Most of the new routers on the market also have built-in firewall and other capabilities that are similar to the DSL modem. You need to disable the duplicated functions.

CONFIGURATION/SETUP CONCEPT:

DSL Line: When you subscribes to DSL or Cable Internet Service, **you need to order Static IP address** from your Internet Service Provider otherwise the ISP will only give you a non-static IP address. Static IP means every time you connect to the internet you are always using the same IP address. Non-Static IP does not guarantee that. When you access the DX-TL2500 from remote you need to know the IP address. A non-Static IP address will not allow you to successfully connect to the DVR since it will be changing.

DSL Modem: When configuring the DSL modem there are two things to consider, the Firewall and the Port Forwarding. The firewall is like a security guard that is monitoring the IN and OUT traffic. Usually there are two types of security controls. One type is using a blacklist. The security guard allows anyone to come and go except the people on the blacklist. The second type is using a permission list. This only allows the people on the list to come and go. The firewall configuration on your DSL modem uses the same logic. To let the DX-TL2500U network packets in and out of your internet line you need to tell the firewall open up ports 80, 53705 ~ 53711 and 55111. Another method is to put the DX-TL2500U outside the firewall. Usually it is called DMZ (**D**e-**M**ilitarized **Z**one) function.

The Port Forwarding feature allows the DX-TL2500U on behalf of your Static IP address (**DSL modem**) answering inquiry to port 80, 53705 ~ 53711 and 55111 requests. If you only ordered one Static IP address then by default your DSL modem will use that address. All of the internet inquiries will be responded by the DSL modem. Port Forwarding feature is always associated with the firewall setup.

Your computers: Logically one static IP address allows only one device to be connected. The shortage of IP address leads to new technique to overcome this problem. One of them is called Network Address Translator (NAT). It allows multiple devices to share one valid IP address. The DSL modem can assign IP address to your computers, and DX-TL2500U etc. Those IP addresses are valid only “within close door” (inside your network) and are invalid to the outside world. To use this feature you need to turn on the DHCP server function on the DSL modem and set your computer to “obtain an IP address automatically”. Then you can have multiple computers, DX-TL2500U and other devices connected at the same time.

DX-TL2500U: The DVR does not support DHCP function. You have to manually assign (input) an IP address to this unit. What IP address to use can be found in the DSL modem setup menu. Pick an IP address

outside the DHCP assignment range. You need to make sure the IP address you choose is in the same subnet as other computers/devices connected to the DSL modem.

INSTALLATION PROCEDURES (EXAMPLE):

1. **Configure the DX-TL2500U**:

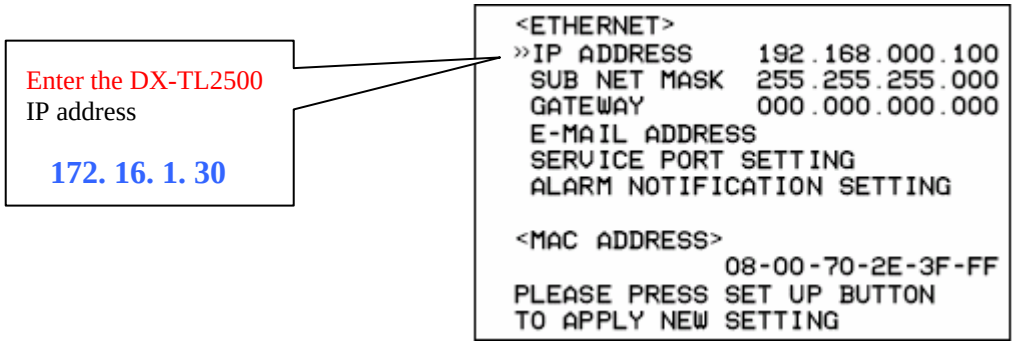
Connect a CAT 5 network cable (straight cable) from the DX-TL2500U to the 2Wire OfficePortal 1800 HW DSL modem. Power on the DVR and follow the instructions on next page to setup the IP address. The IP address is determined by the DSL modem's DHCP IP address assignment list. For example if the range of the IP addresses are as follow,

172. 16. 1. 40 ~ 172. 16. 1. 126

then you can choose 2 ~ 39 (**172.16.1.2**, **172.16.1.3**, **172.16.1.4** … **172.16.1.39**) for the last number. The number you picked has to be unique. In this installation I chose **172. 16. 1. 30**. You should always avoid using **0**, **127** and **255.** Those three ending numbers are reserved and have special meaning/function.

Step 1. *Press the **SET UP** button → <**SETTINGS**> → <**INITIAL SET UP/INFORMATION**> → Select "**ETHERNET**" in the <**COMMUNICATION PORT SETTINGS**> screen and turn the SHUTTLE ring clockwise*

- **The <ETHERNET> screen appears.**



Step 2. Use the Shuttle to *Select IP Address, then again turn the Shuttle to select the first number (blinking in red), change the number by turning the JOG dial and then turn the SHUTTLE ring clockwise to accept the new number (number background turns white)*. Use the JOG to move to the next number and proceed as before to make the additional needed changes. Once all changes have been made, ensure that the last number is not blinking in RED and turn the Shuttle Counter Clock wise, this move the cursor to the left of the IP Address setting. Move down to the Sub Net Mask and Gateway to make appropriate changes. **Note**: If the DVR refuses to accept a number it could be because the whole number (3 digits) is larger than 255. For example, if you want to enter 216.237.45.100 as the IP address. You cannot change **1** (**1**92) to **2** (**2**16) because if the DVR accepts it then at that moment the IP address will be **2**92 that's not

a valid IP address (greater than 255). Therefore you need to change the second digit the number "9" first.

Step 3. Once all changes have been made, press the SETUP Button for about 2 seconds to APPLY the new changes. *The unit will Turn-Off and back ON. The DVR will come-up in its ready state. No other changes are needed at this time*

2. Configure the computer:

The following example is based on the Windows 2000 operating system. Other operating systems such as UNIX, Linux, Macintosh, Windows XP, NT, Me, 98, 95 etc. should have the same capabilities but in a different formats. Please consult your operating system's manual.

Connect a CAT 5 network cable to the OfficePortal 1800 HW .

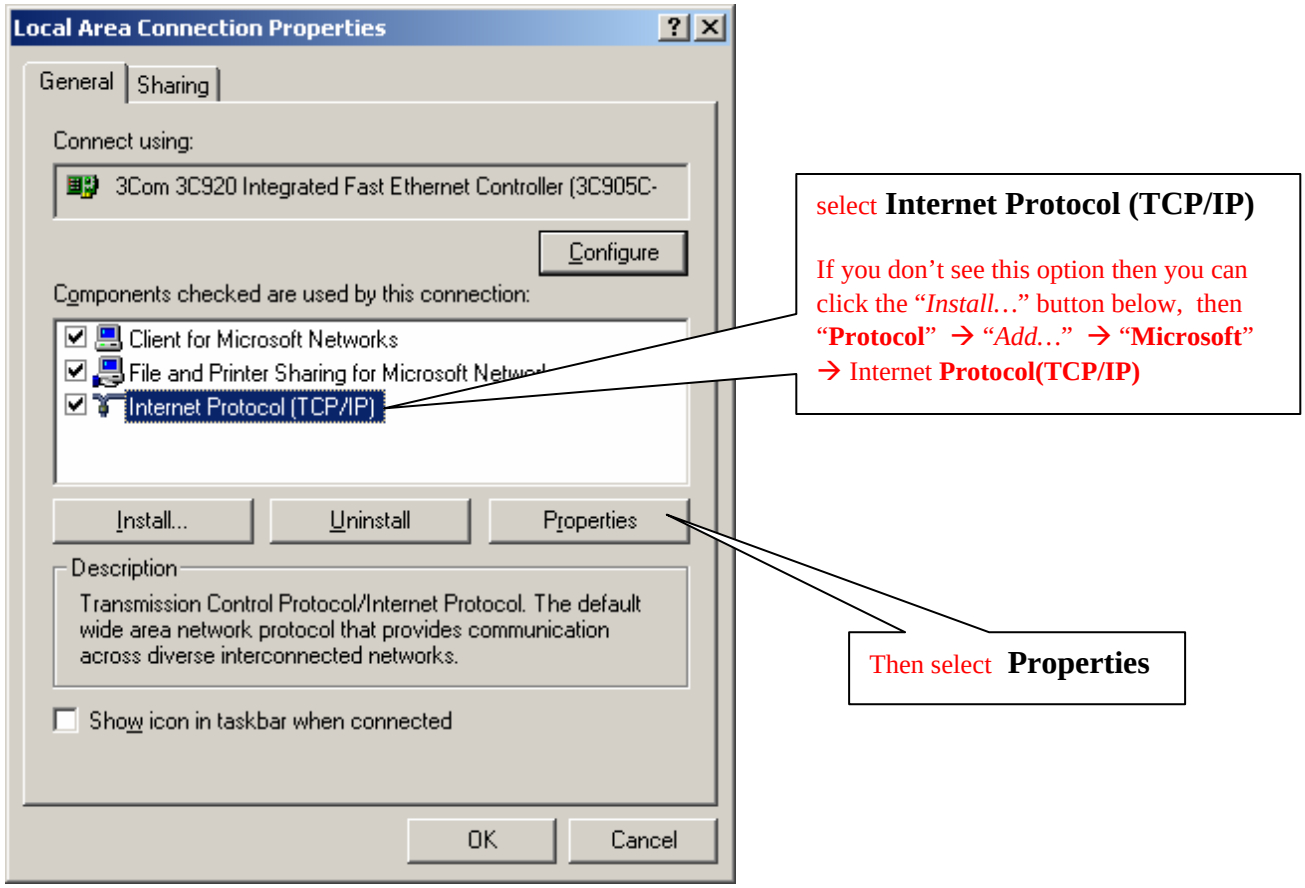
Turn on the OfficePortal 1800 HW

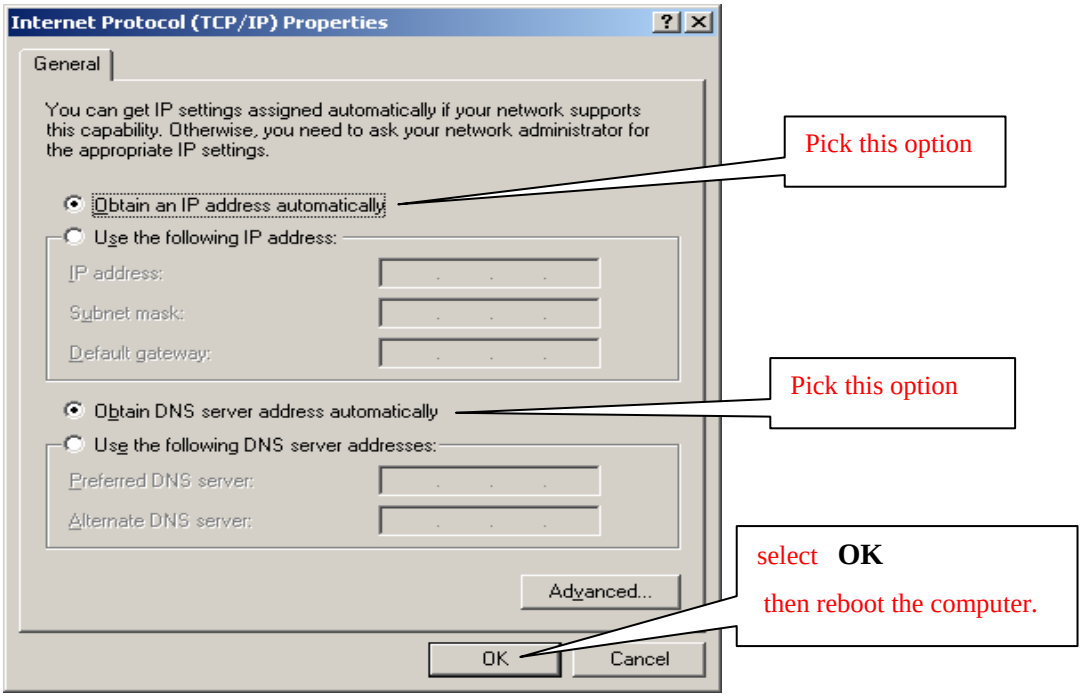
Turn on the computer.

From the Windows Desktop, select

Start → **Settings** → **Control Panel** → **Network and Dial-up connections**

Right click "**Local Area Connection**", select "**Properties**"

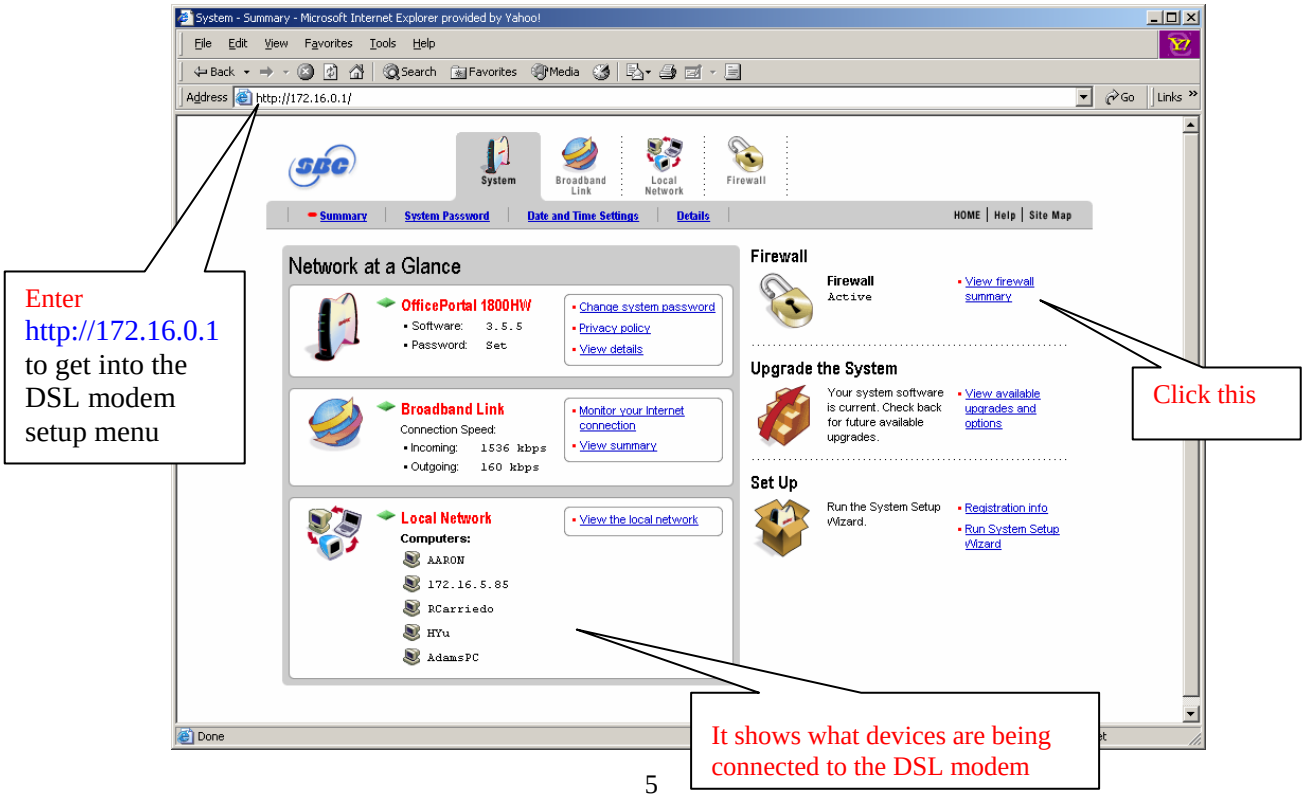

Local Area Connection Properties
General
Sharing
Connect using:
3Com 3C920 Integrated Fast Ethernet Controller (3C905C-
Configure
Components checked are used by this connection:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networ
Internet Protocol (TCP/IP)
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in taskbar when connected
OK
Cancel
select Internet Protocol (TCP/IP)
If you don't see this option then you can click the "Install…" button below, then "Protocol" → "Add…" → "Microsoft" → Internet Protocol(TCP/IP)
Then select Properties

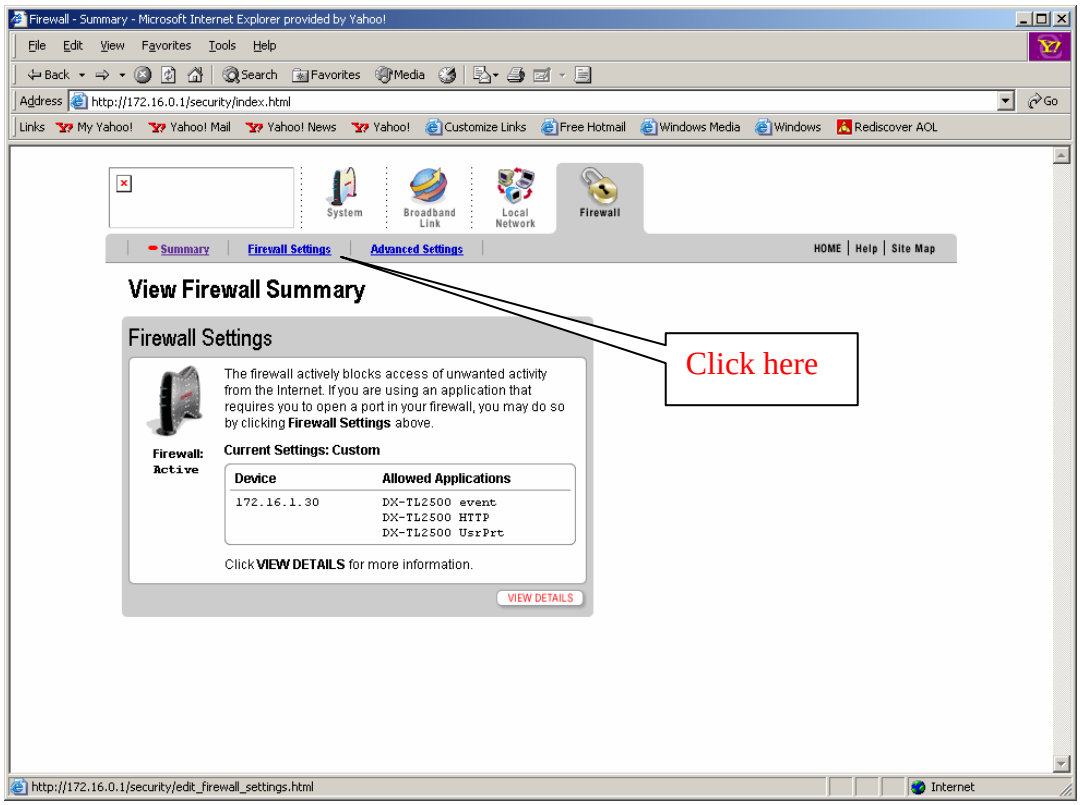

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel
Pick this option
Pick this option
select OK
then reboot the computer.

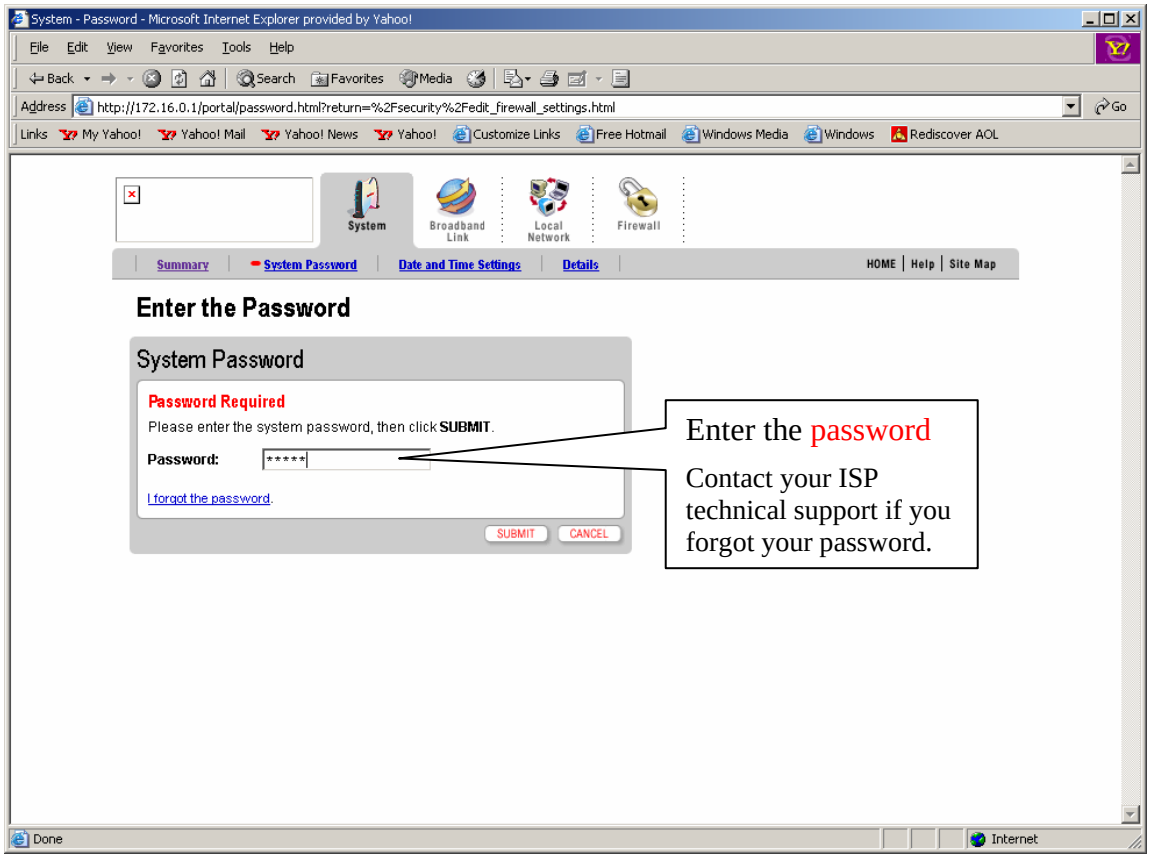
You need to reboot your computer in order to acquire an IP address from your DSL modem.

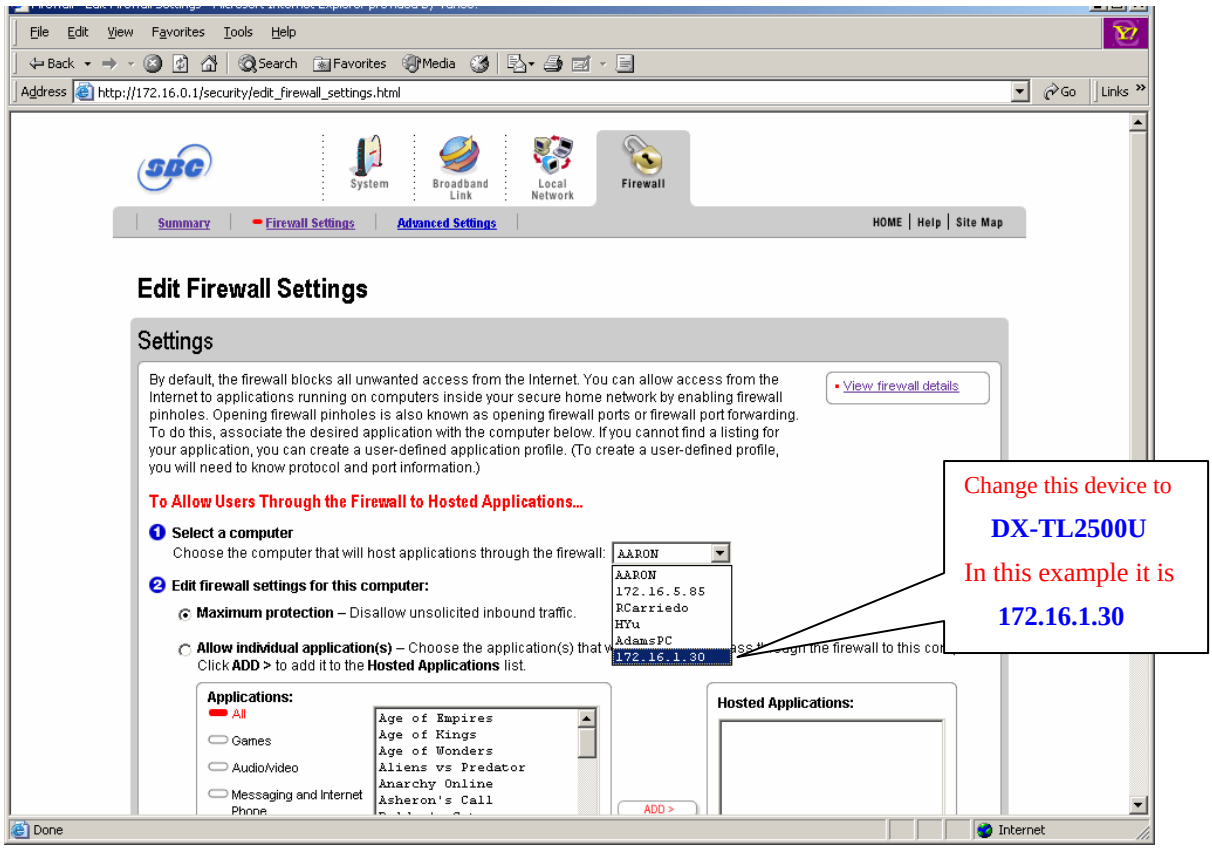
3. Configure the OfficePortal 1800 HW :

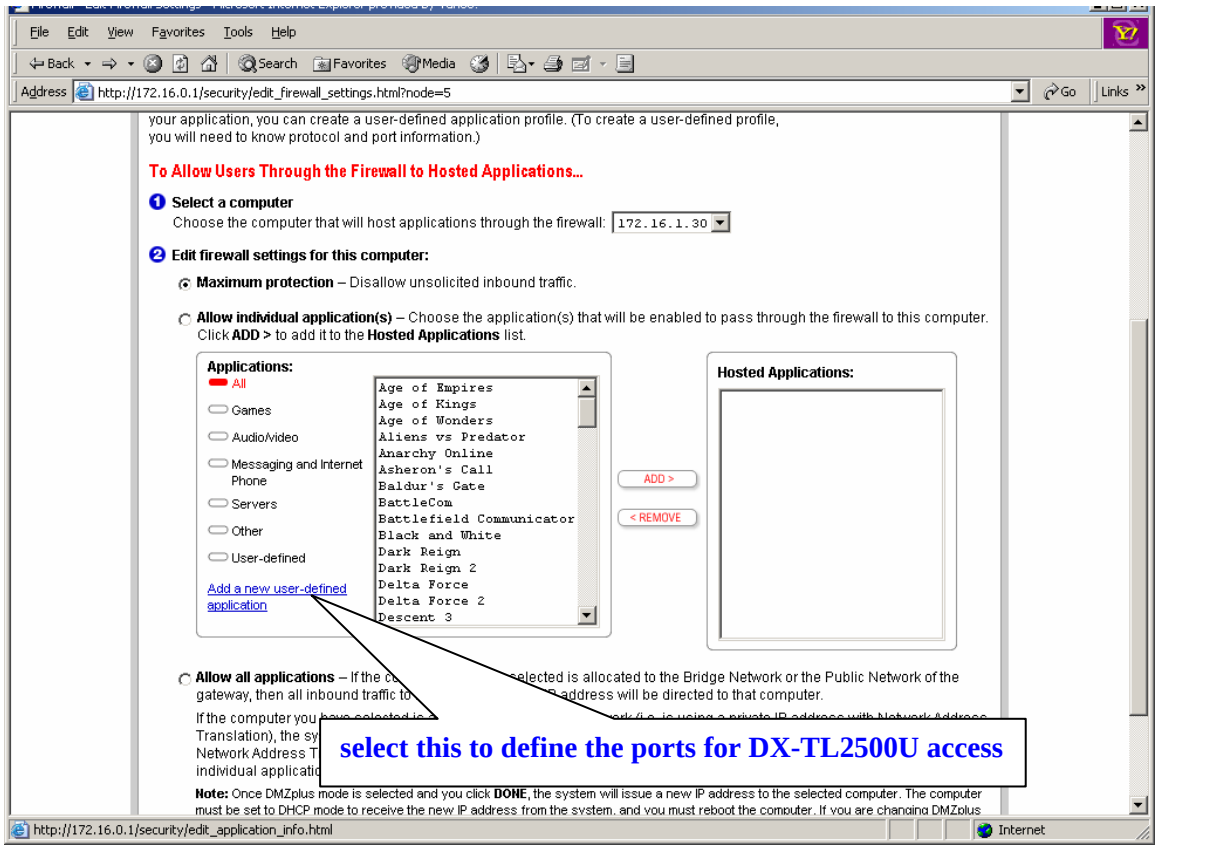
After rebooting the above configured computer, run Microsoft Internet Explorer (NETSCAPE or any other internet browsers). At the Address type **http://172.16.0.1/**

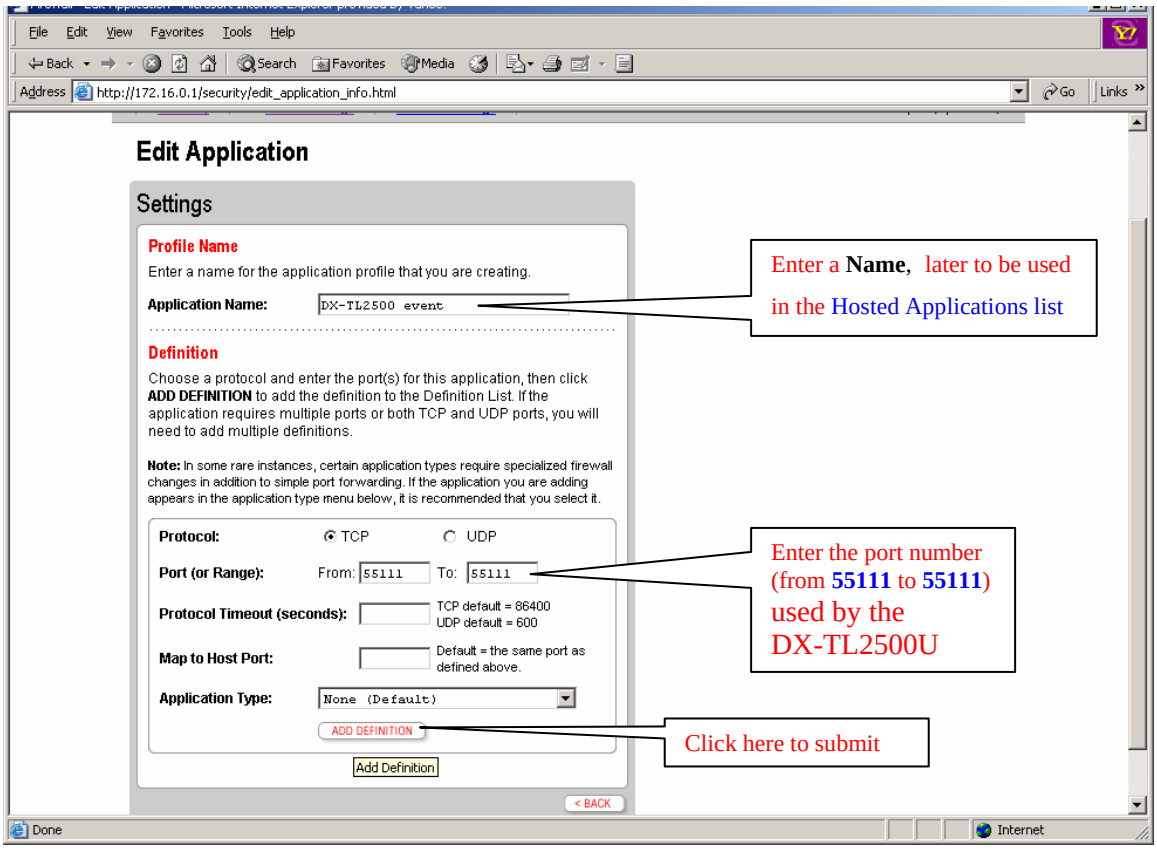


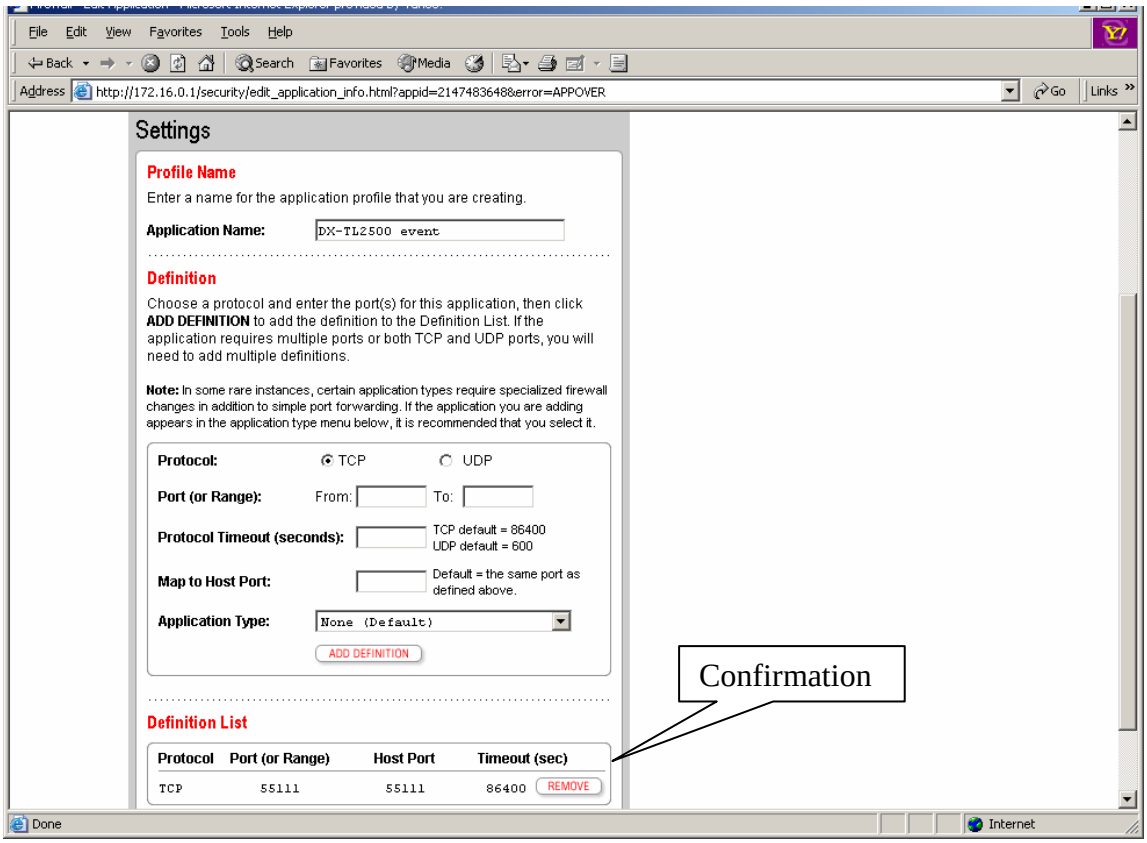

Firewall - Summary - Microsoft Internet Explorer provided by Yahoo!
http://172.16.0.1/security/index.html
System
Broadband Link
Local Network
Firewall
Summary
Firewall Settings
Advanced Settings
HOME | Help | Site Map
View Firewall Summary
Firewall Settings
The firewall actively blocks access of unwanted activity from the Internet. If you are using an application that requires you to open a port in your firewall, you may do so by clicking Firewall Settings above.
Firewall: Active
Current Settings: Custom
Device
Allowed Applications
172.16.1.30
DX-TL2500 event
DX-TL2500 HTTP
DX-TL2500 UsrPrt
Click VIEW DETAILS for more information.
VIEW DETAILS
Click here
http://172.16.0.1/security/edit_firewall_settings.html
Internet

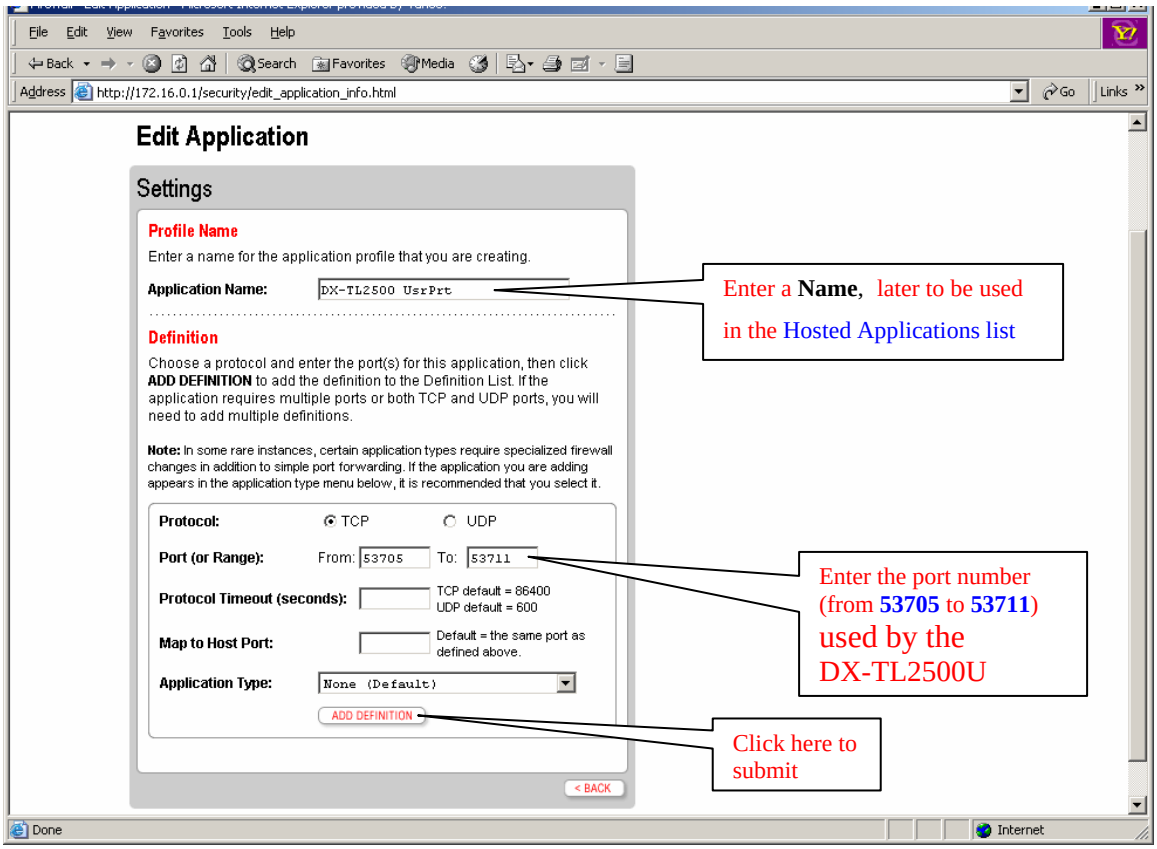

System - Password - Microsoft Internet Explorer provided by Yahoo!
http://172.16.0.1/portal/password.html?return=%2Fsecurity%2Fedit_firewall_settings.html
System
Broadband Link
Local Network
Firewall
Summary
System Password
Date and Time Settings
Details
HOME | Help | Site Map
Enter the Password
System Password
Password Required
Please enter the system password, then click SUBMIT.
Password:
*****
I forgot the password.
SUBMIT
CANCEL
Enter the password
Contact your ISP technical support if you forgot your password.
Done
Internet

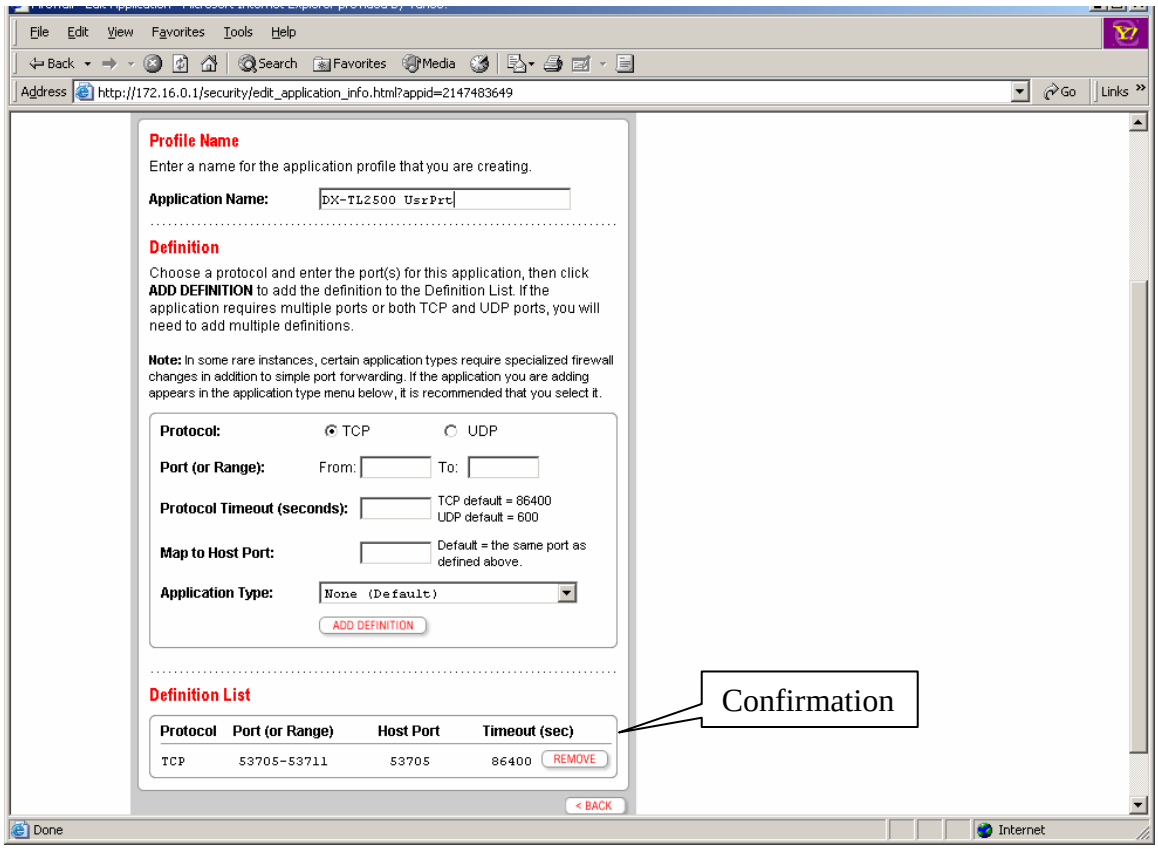

http://172.16.0.1/security/edit_firewall_settings.html
Summary
Firewall Settings
Advanced Settings
HOME | Help | Site Map
Edit Firewall Settings
Settings
View firewall details
To Allow Users Through the Firewall to Hosted Applications...
Select a computer
Choose the computer that will host applications through the firewall:
AARON
172.16.5.85
RCarriedo
HYu
AdamsPC
172.16.1.30
Edit firewall settings for this computer:
Maximum protection – Disallow unsolicited inbound traffic.
Allow individual application(s) – Choose the application(s) that will be enabled to pass through the firewall to this computer.
Click ADD > to add it to the Hosted Applications list.
Applications:
All
Games
Audio/Video
Messaging and Internet Phone
Age of Empires
Age of Kings
Age of Wonders
Aliens vs Predator
Anarchy Online
Asheron's Call
ADD >
Hosted Applications:
Change this device to
DX-TL2500U
In this example it is
172.16.1.30

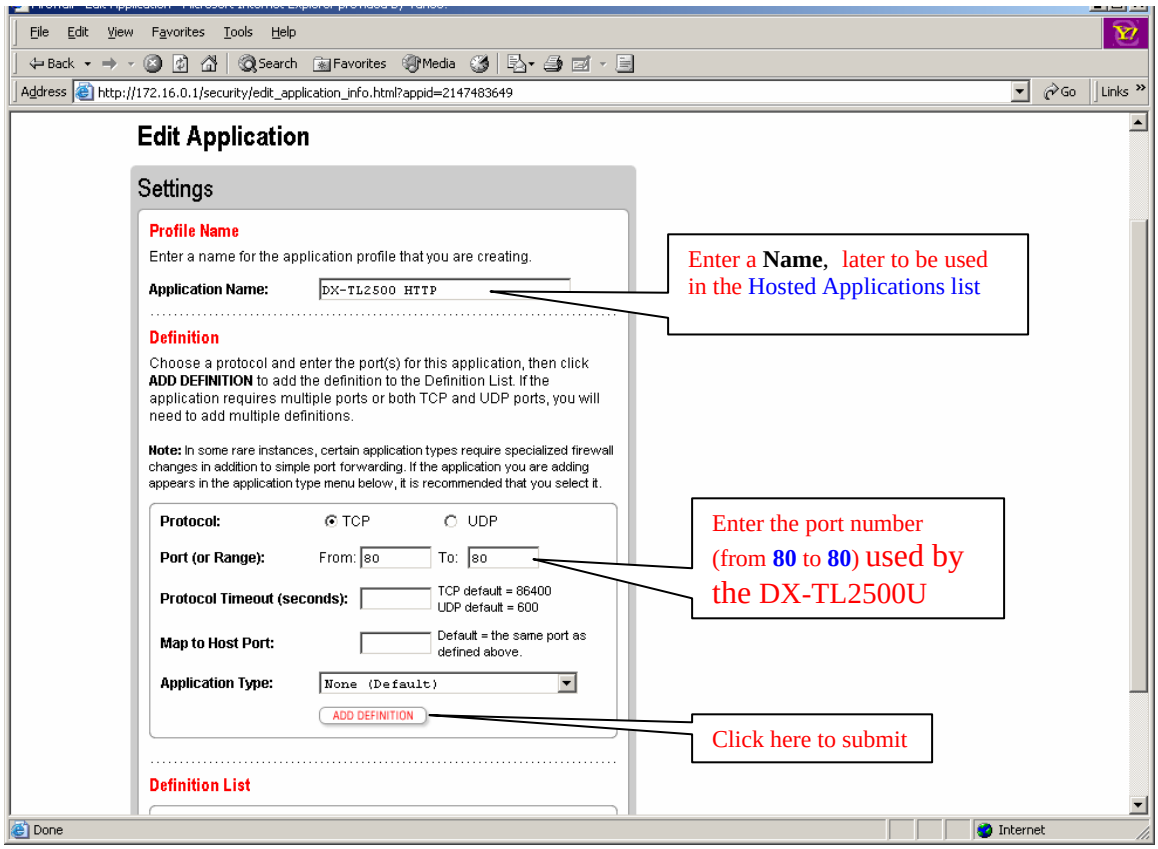

http://172.16.0.1/security/edit_firewall_settings.html?node=5
To Allow Users Through the Firewall to Hosted Applications...
Select a computer
Choose the computer that will host applications through the firewall:
172.16.1.30
Edit firewall settings for this computer:
Maximum protection – Disallow unsolicited inbound traffic.
Allow individual application(s) – Choose the application(s) that will be enabled to pass through the firewall to this computer.
Click ADD > to add it to the Hosted Applications list.
Applications:
All
Games
Audio/Video
Messaging and Internet Phone
Servers
Other
User-defined
Add a new user-defined application
Age of Empires
Age of Kings
Age of Wonders
Aliens vs Predator
Anarchy Online
Asheron's Call
Baldur's Gate
BattleCom
Battlefield Communicator
Black and White
Dark Reign
Dark Reign 2
Delta Force
Delta Force 2
Descent 3
ADD >
< REMOVE
Hosted Applications:
Allow all applications
Note: Once DMZplus mode is selected and you click DONE, the system will issue a new IP address to the selected computer. The computer must be set to DHCP mode to receive the new IP address from the system, and you must reboot the computer. If you are changing DMZplus
select this to define the ports for DX-TL2500U access

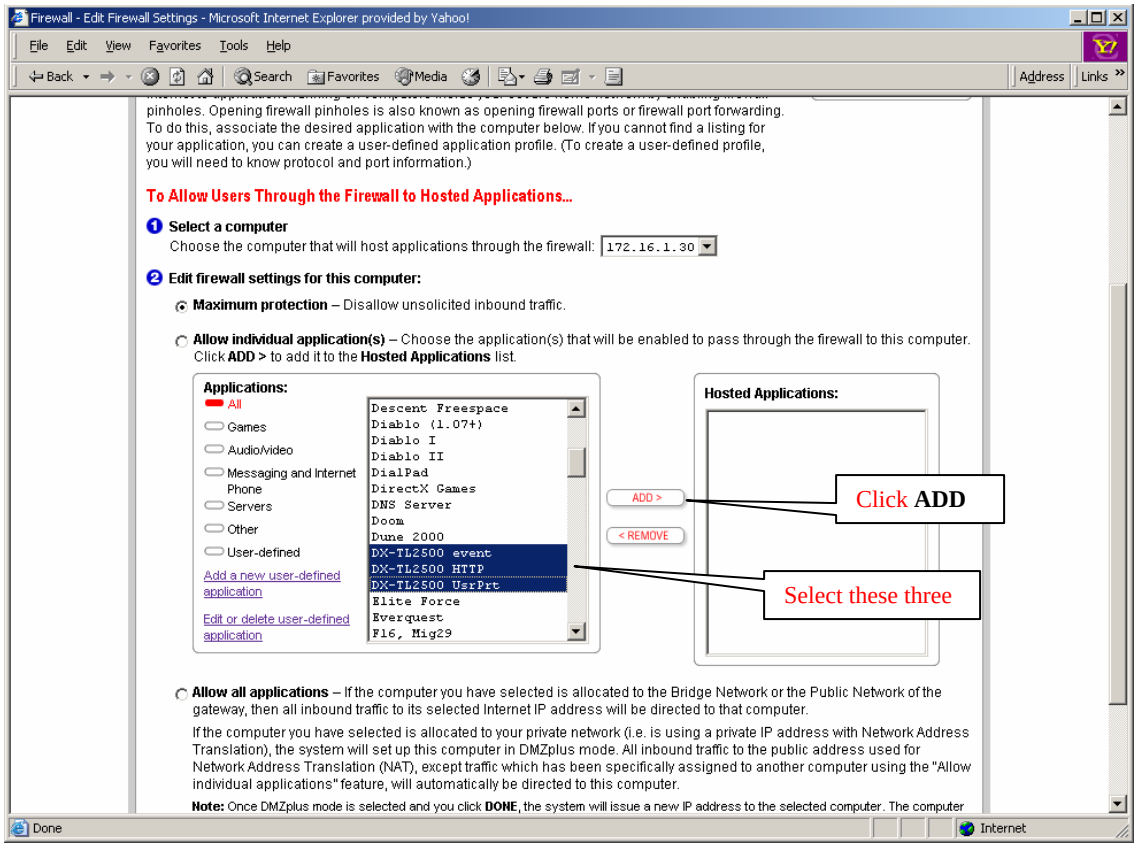

File Edit View Favorites Tools Help
Address http://172.16.0.1/security/edit_application_info.html
Edit Application
Settings
Profile Name
Enter a name for the application profile that you are creating.
Application Name: DX-TL2500 event
Definition
Choose a protocol and enter the port(s) for this application, then click ADD DEFINITION to add the definition to the Definition List. If the application requires multiple ports or both TCP and UDP ports, you will need to add multiple definitions.
Note: In some rare instances, certain application types require specialized firewall changes in addition to simple port forwarding. If the application you are adding appears in the application type menu below, it is recommended that you select it.
Protocol: TCP UDP
Port (or Range): From: 55111 To: 55111
Protocol Timeout (seconds): TCP default = 86400 UDP default = 600
Map to Host Port: Default = the same port as defined above.
Application Type: None (Default)
ADD DEFINITION
Add Definition
< BACK
Enter a Name, later to be used in the Hosted Applications list
Enter the port number (from 55111 to 55111) used by the DX-TL2500U
Click here to submit
Done
Internet

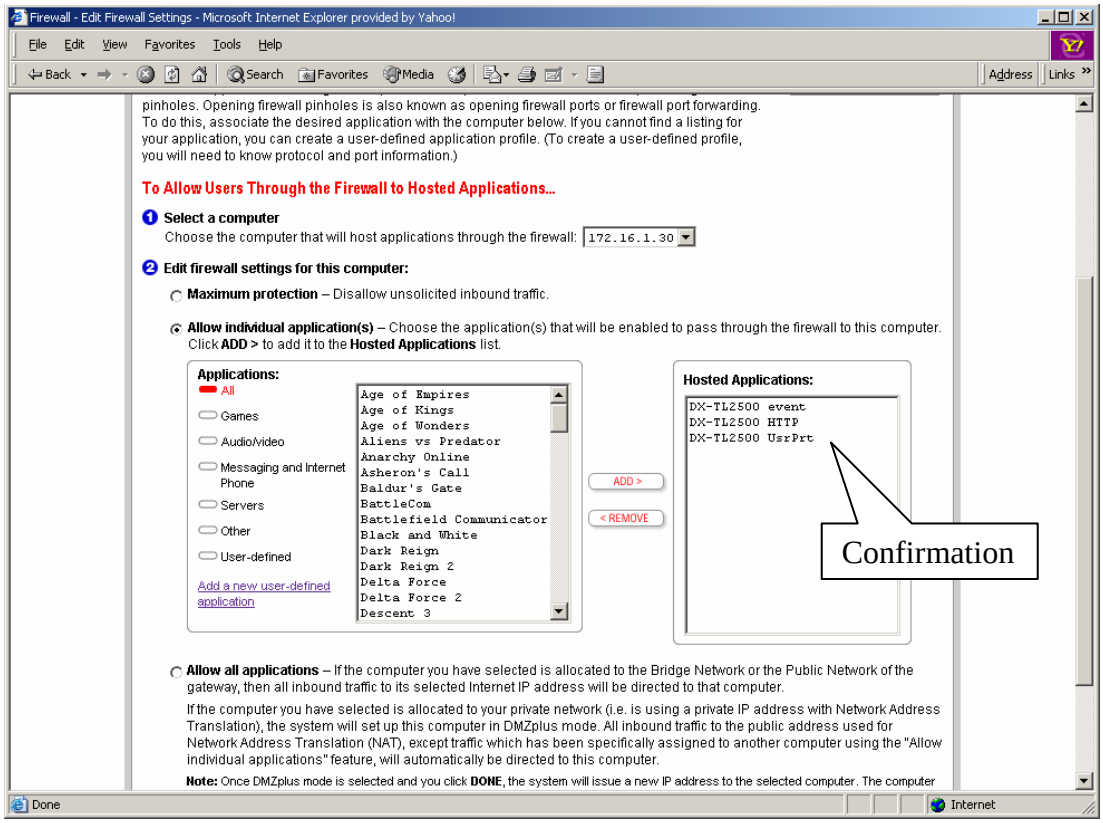

File Edit View Favorites Tools Help
Address http://172.16.0.1/security/edit_application_info.html?appid=2147483648&error=APPOVER
Settings
Profile Name
Enter a name for the application profile that you are creating.
Application Name: DX-TL2500 event
Definition
Choose a protocol and enter the port(s) for this application, then click ADD DEFINITION to add the definition to the Definition List. If the application requires multiple ports or both TCP and UDP ports, you will need to add multiple definitions.
Note: In some rare instances, certain application types require specialized firewall changes in addition to simple port forwarding. If the application you are adding appears in the application type menu below, it is recommended that you select it.
Protocol: TCP UDP
Port (or Range): From: To:
Protocol Timeout (seconds): TCP default = 86400 UDP default = 600
Map to Host Port: Default = the same port as defined above.
Application Type: None (Default)
ADD DEFINITION
Definition List
Protocol Port (or Range) Host Port Timeout (sec)
TCP 55111 55111 86400 REMOVE
Confirmation
Done
Internet


File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://172.16.0.1/security/edit_application_info.html
Go Links
Edit Application
Settings
Profile Name
Enter a name for the application profile that you are creating.
Application Name: DX-TL2500 UsrPrt
Definition
Choose a protocol and enter the port(s) for this application, then click ADD DEFINITION to add the definition to the Definition List. If the application requires multiple ports or both TCP and UDP ports, you will need to add multiple definitions.
Note: In some rare instances, certain application types require specialized firewall changes in addition to simple port forwarding. If the application you are adding appears in the application type menu below, it is recommended that you select it.
Protocol: TCP UDP
Port (or Range): From: 53705 To: 53711
Protocol Timeout (seconds): TCP default = 86400 UDP default = 600
Map to Host Port: Default = the same port as defined above.
Application Type: None (Default)
ADD DEFINITION
< BACK
Done
Internet
Enter a Name, later to be used in the Hosted Applications list
Enter the port number (from 53705 to 53711) used by the DX-TL2500U
Click here to submit


File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://172.16.0.1/security/edit_application_info.html?appid=2147483649
Go Links
Profile Name
Enter a name for the application profile that you are creating.
Application Name: DX-TL2500 UsrPrt
Definition
Choose a protocol and enter the port(s) for this application, then click ADD DEFINITION to add the definition to the Definition List. If the application requires multiple ports or both TCP and UDP ports, you will need to add multiple definitions.
Note: In some rare instances, certain application types require specialized firewall changes in addition to simple port forwarding. If the application you are adding appears in the application type menu below, it is recommended that you select it.
Protocol: TCP UDP
Port (or Range): From: To:
Protocol Timeout (seconds): TCP default = 86400 UDP default = 600
Map to Host Port: Default = the same port as defined above.
Application Type: None (Default)
ADD DEFINITION
Definition List
Protocol Port (or Range) Host Port Timeout (sec)
TCP 53705-53711 53705 86400 REMOVE
< BACK
Done
Internet
Confirmation


File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://172.16.0.1/security/edit_application_info.html?appid=2147483649
Go Links
Edit Application
Settings
Profile Name
Enter a name for the application profile that you are creating.
Application Name: DX-TL2500 HTTP
Enter a Name, later to be used in the Hosted Applications list
Definition
Choose a protocol and enter the port(s) for this application, then click ADD DEFINITION to add the definition to the Definition List. If the application requires multiple ports or both TCP and UDP ports, you will need to add multiple definitions.
Note: In some rare instances, certain application types require specialized firewall changes in addition to simple port forwarding. If the application you are adding appears in the application type menu below, it is recommended that you select it.
Protocol: TCP UDP
Port (or Range): From: 80 To: 80
Enter the port number (from 80 to 80) used by the DX-TL2500U
Protocol Timeout (seconds): TCP default = 86400 UDP default = 600
Map to Host Port: Default = the same port as defined above.
Application Type: None (Default)
ADD DEFINITION
Click here to submit
Definition List
Done
Internet


Firewall - Edit Firewall Settings - Microsoft Internet Explorer provided by Yahoo!
File Edit View Favorites Tools Help
Back Search Favorites Media
Address Links
pinholes. Opening firewall pinholes is also known as opening firewall ports or firewall port forwarding. To do this, associate the desired application with the computer below. If you cannot find a listing for your application, you can create a user-defined application profile. (To create a user-defined profile, you will need to know protocol and port information.)
To Allow Users Through the Firewall to Hosted Applications...
1 Select a computer
Choose the computer that will host applications through the firewall: 172.16.1.30
2 Edit firewall settings for this computer:
Maximum protection – Disallow unsolicited inbound traffic.
Allow individual application(s) – Choose the application(s) that will be enabled to pass through the firewall to this computer. Click ADD > to add it to the Hosted Applications list.
Applications:
All
Games
Audio/video
Messaging and Internet Phone
Servers
Other
User-defined
Add a new user-defined application
Edit or delete user-defined application
Descent Freespace
Diablo (1.07+)
Diablo I
Diablo II
DialPad
DirectX Games
DNS Server
Doom
Dune 2000
DX-TL2500 event
DX-TL2500 HTTP
DX-TL2500 UsrPrt
Elite Force
Everquest
F16, Mig29
ADD >
< REMOVE
Hosted Applications:
Click ADD
Select these three
Allow all applications – If the computer you have selected is allocated to the Bridge Network or the Public Network of the gateway, then all inbound traffic to its selected Internet IP address will be directed to that computer.
If the computer you have selected is allocated to your private network (i.e. is using a private IP address with Network Address Translation), the system will set up this computer in DMZplus mode. All inbound traffic to the public address used for Network Address Translation (NAT), except traffic which has been specifically assigned to another computer using the "Allow individual applications" feature, will automatically be directed to this computer.
Note: Once DMZplus mode is selected and you click DONE, the system will issue a new IP address to the selected computer. The computer
Done
Internet


Firewall - Edit Firewall Settings - Microsoft Internet Explorer provided by Yahoo!
File Edit View Favorites Tools Help
Back Search Favorites Media Address Links
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2 Edit firewall settings for this computer:
Maximum protection – Disallow unsolicited inbound traffic.
Allow individual application(s) – Choose the application(s) that will be enabled to pass through the firewall to this computer.
Click ADD > to add it to the Hosted Applications list.
Applications:
All
Games
Audio/video
Messaging and Internet Phone
Servers
Other
User-defined
Add a new user-defined application
Age of Empires
Age of Kings
Age of Wonders
Aliens vs Predator
Anarchy Online
Asheron's Call
Baldur's Gate
BattleCom
Battlefield Communicator
Black and White
Dark Reign
Dark Reign 2
Delta Force
Delta Force 2
Descent 3
ADD >
< REMOVE
Hosted Applications:
DX-TL2500 event
DX-TL2500 HTTP
DX-TL2500 UsrPrt
Confirmation
Allow all applications – If the computer you have selected is allocated to the Bridge Network or the Public Network of the gateway, then all inbound traffic to its selected Internet IP address will be directed to that computer.
If the computer you have selected is allocated to your private network (i.e. is using a private IP address with Network Address Translation), the system will set up this computer in DMZplus mode. All inbound traffic to the public address used for Network Address Translation (NAT), except traffic which has been specifically assigned to another computer using the "Allow individual applications" feature, will automatically be directed to this computer.
Note: Once DMZplus mode is selected and you click DONE, the system will issue a new IP address to the selected computer. The computer
Done
Internet

When you finished the configuration, all of the connected computers should be able to go online without any problem. You can type your Static IP address at a browser from any part of the world to access the DX-TL2500U.

- Default USER NAME “root” and PASSWORD “admin000” (no quotes and case sensitive, 0 is numeric zero not letter O) is also required.

You can also connect to the DVR via the DX-PC25U software. This software comes with the product and must be loaded on each connecting PC. The same User Name and Password as above applies.